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(54) **SPRAY ATTACHMENT FOR LAWN MOWERS**

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1. The invention relates to a spray attachment for use with a rotary lawnmower, and more particularly to a spray attachment for use with a rotary lawnmower having a protective housing for the blades.

2. It is an object of the invention to provide a spray attachment for use with a rotary lawnmower which is particularly adapted for use with a rotary type mower because the usual blade housing thereof can be effectively utilized to confine the spray. It is not intended that the invention be restricted to use with this type of mower, however, since it can also be used advantageously with a reel mower or having a suitable container, such as will be apparent from the following detailed description.

3. Another important object of the invention is to provide a liquid spray attachment for use with a rotary lawnmower which has a very simple construction and can be attached to a conventional rotary lawnmower without the need for any special mounting means.

4. A further important object of the invention is to provide a spray attachment for use with a rotary lawnmower wherein the spray is directed into the path of the moving blade or blades of the mower for atomization of the spray liquid thereby.

5. A still further important object of the invention is to provide a spray attachment for use with a rotary lawnmower having a universal type of attaching means whereby the device can be used with most existing makes and models of rotary mowers and can be quickly and easily mounted on same.

6. Another important object of the invention is to provide a spray attachment for use with a rotary lawnmower which is simple in construction.

7. Still another important object of the invention is to provide a spray attachment for use with a rotary lawnmower which has a minimum of moving parts and thus requires a minimum of maintenance and repair.

8. Other objects and advantages of the invention will become apparent from the following detailed description thereof read in conjunction with the accompanying drawings which illustrate a representative embodiment of the invention for the purpose of disclosure.

In the drawings:

Figure 1 is a perspective view of a liquid spray

attachment embodying the invention, as applied to a conventional type of rotary lawnmower. Figure 2 is an enlarged front elevation of the spray attachment, showing the means for mounting the device on the mower housing. Figure 3 is an enlarged front elevation of the spray attachment, showing the means for mounting the device on the mower housing.

10. Figure 4 is a vertical section through the spray attachment, taken along line 4-4 of Figure 1. Figure 5 is a horizontal section through the spray attachment, taken along line 5-5 of Figure 1. Figure 6 is a side elevation of the spray attachment, taken along line 6-6 of Figure 1.

15. Figure 7 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade. Figure 8 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade.

20. Figure 9 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade. Figure 10 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade.

25. Figure 11 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade. Figure 12 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade.

30. Figure 13 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade. Figure 14 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade.

35. Figure 15 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade. Figure 16 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade.

40. Figure 17 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade. Figure 18 is a perspective view of the spray head, showing the location of the spray head relative to the mowing blade.

This invention relates generally to attachments for lawn mowers, and has special reference to a novel liquid spray attachment which is particularly adapted for spraying weed killing liquids in a controlled and safe manner.

5 The applicant is cognizant of the fact that various types of liquid spray devices have been developed heretofore for use in connection with lawn mowing equipment. The great majority of these devices are unsuited for spraying weed killers, however, since they provide no means for confining the spray which can
10 easily be carried by even a slight breeze to nearby plants and flowers. In addition, many of the prior devices are relatively complex structurally while others require considerable modification to the mower before the device can be attached thereto.

 The primary object of the present invention, therefore,
15 is to provide a liquid spray attachment for lawn mowers which enables a weed killing liquid to be sprayed in close proximity to plants and flowers without carrying over to and destroying same. To this end, the invention contemplates a spray attachment that is particularly adapted for use with a rotary type mower because
20 the usual blade housing thereof can be effectively utilized to confine the spray. It is not intended that the invention be restricted to use with this type of mower, however, since it can also be used advantageously with a reel type mower having a suitable reel enclosure as will be apparent from the following
25 detailed description.

 Another important object of the invention is to provide a liquid spray attachment for lawn mowers which has a very simple construction and can be attached to conventional mower structure

without the necessity for modifying same.

A further important object of the invention is to provide a spray attachment for lawn mowers wherein the spray is directed into the path of the moving blade or blades of the mower for
5 atomization of the spray liquid thereby.

A still further important object of the invention is to provide a spray attachment for lawn mowers having a universal type of attaching means, whereby the device can be used with most existing makes and models for rotary mowers and can be quickly and
10 easily mounted on same.

Another important object of the invention is to provide a spray attachment for lawn mowers which is inexpensive to manufacture and yet is reliable and efficient in operation.

Still another important object of the invention is to
15 provide a spray attachment for lawn mowers which has no moving parts and thus requires a minimum of upkeep and repair.

Other objects and advantages of the invention will become apparent from the following detailed description thereof read in conjunction with the accompanying drawings which illustrate a
20 representative embodiment of the invention for the purpose of disclosure.

In the drawings:

Figure 1 is a perspective view of a liquid spray attachment embodying the invention as applied to a conventional type of
25 rotary lawn mower;

Figure 2 is an enlarged front elevation of the upper portion of Figure 1 showing the means for mounting the liquid container on the mower handle;

Figure 3 is an enlarged front elevation of the spray head of the spray attachment;

Figure 4 is an enlarged side elevation of the spray head;

5 Figure 5 is a vertical section through the spray head taken substantially along line 5-5 of Figure 3;

Figure 6 is a horizontal section through the spray head taken substantially along line 6-6 of Figure 3;

Figure 7 is a side elevation of the mower blade housing with the spray head mounted thereon; and

10 Figure 8 is a fragmentary bottom plan view of the mower illustrating the location of the spray head relative to the cutting blade.

Having reference now to the drawings, wherein like reference numbers designate the same part in each of the views,
15 10 generally indicates a substantially conventional type of rotary lawn mower having the usual protective housing 11 for the cutting blade, engine 12 and operating handle 14. The spray attachment for the mower is essentially comprised of a spray head 15 mounted on the blade housing, a container 17 for the liquid which is
20 preferably mounted on the handle, and a flexible conduit 18 to conduct the liquid from the container to the spray head.

The spray head 15 is preferably in the form of a relatively small metal block which may be cast or machined to the shape shown in the drawings. At its lower end, the head is formed with
25 a transverse channel 20 which receives the lower edge of the depending skirt 21 of the blade housing when the head is mounted thereon as shown in Figures 1, 7 and 8. This positions the outer wall 22 of the channel in the interior of the housing while the

remainder of the spray head is positioned on the exterior of the housing in abutment with the wall of the skirt.

The spray head is detachably yet firmly secured in position on the mower housing by an adjustable attachment means which comprises coacting flexible and resilient members extending between the head and a portion of the mower structure. The flexible member is preferably a light chain 24 which passes through a horizontal bore 25 in the upper end of the spray head and extends up over the top of the housing where one end is connected to a hook 27 on an end of the resilient member which is preferably a tension spring 28. The spring is then passed around the engine block 30, or some other fixed structure on the mower, and the hook 27 on the other end of the spring is connected to a link of the chain after placing the spring under sufficient tension to hold the spray head in position on the mower housing with the lower edge of the skirt firmly engaged in the channel 20.

The liquid container or supply source 17 is preferably a five quart can having a top filling opening and cap 31 and a bottom outlet connection 32. Can 17 may be detachably mounted on the mower handle 14 as by a pair of attaching devices each of which comprises a loop hanger 34 positioned on a handle bar 35, a length of light chain 37 connected to the hanger, and a hook 38 on the end of the chain engaging a D-loop 40 or the like on the can. Adjustability can, of course, be obtained by simply varying the length of the chains between the hangers and hooks. To prevent the can from rattling against the handle, a tension spring 41 having end hooks 42 may be stretched from a D-loop 44 on the lower portion of the can to the back edge of the housing skirt or to any other suitable anchoring position on the mower.

The flexible conduit 18, which may be a section of vinyl or rubber tubing, is connected at its upper end to the bottom outlet 32 of the liquid container and at its lower end to an inlet connection 45 on the spray head. To control the flow of liquid through the conduit, a spring metal clip or pinch cock 47 is mounted thereon, the clip in its open position allowing the spray attachment to operate and in its closed position pinching off the conduit so that the spray is shut off. The clip 47 is preferably located at the lower end of the conduit, close to the spray head, because this substantially eliminates the formation of air bubbles in the conduit when the flow of liquid is shut off.

The inlet connection 45 on the spray head communicates with a horizontal passage 48 therein, and the latter in turn communicates with a downwardly extending passage 50, Figures 3-6. At its lower end, passage 50 terminates in a short, substantially horizontal passage 51 and one or more restricted passages 52 extend from the outer end of this passage to the outer wall 22 of the spray head channel. In the illustrated embodiment of the invention, three such passages 52 are shown with the outer two diverging from the center passage so that the liquid which flows through conduit 18, passages 48, 50 and 51 will form a fan-like spray as it emerges from the restricted passages 52, see Figure 8.

Having specific reference to the bottom plan view of Figure 8, it will be seen that the location of the outer channel wall 22 of the spray head within the mower housing 11 positions the outer orifices of the passages 52 in close proximity to the mower blade 54. The liquid spray is thus directed into the path of the blade, and as the latter rotates at high speed it atomizes

most of the spray which increases the coverage thereof over the path travelled by the mower. At the same time, however, the mower housing serves to confine the spray therewithin which is necessary to prevent destruction of nearby garden plants, as has been noted previously. In connection with the foregoing, it will be noted from Figure 5 that the restricted spray passages 52 have a slight upward incline towards their outer ends which results in greater coverage of the spray over the mower blade and also insures that the major portion of the spray will always fall into the path of the blade even though the latter is adjusted up or down.

As is best shown in Figures 5 and 6, the spray head passages 50 and 51 actually extend to the outside of the head where they are threaded and plugged with Allen screws 55. This allows access to all of the spray head passages for cleaning and, since the attachment has no moving parts, an occasional cleaning of these passages is normally the only upkeep required.

While a single spray head 15 has proved adequate for mowers having a 21" blade, an additional head mounted as indicated in dash lines at 15a in Figure 1 may be desirable for larger mowers to insure a sufficient amount of liquid for thorough coverage. The second spray head is mounted on the mower by means of chain and spring members just like the first head and can be connected in series therewith by a section of conduit (not shown) extending from an outlet connection 57 on the first spray head to the inlet connection 45a on the second head 15a. When but a single unit is being used, the connection 57 is closed off by a suitable cap 58 which may be threaded or frictionally secured thereon.

As mentioned hereinabove, the adjustable attachment means for the spray head is designed to enable the device to be quickly and easily installed on any known make or model of rotary mower. To this end, a relatively long length of chain 24 is
5 provided with the spray attachment so that the chain and spring combination will be adequate for engagement with some portion of the mower structure on a blade housing of any size or shape. After the user has found the right place on the chain to connect the end of the spring as above described, any excess chain can
10 of course be cut off.

From the foregoing description it will be apparent that the invention described herein provides a simple yet highly practical liquid spray attachment for lawn mowers which enables weed killing liquids to be effectively and safely sprayed while
15 the lawn is being mowed. As will be apparent to those familiar with the art, the invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The embodiment disclosed is therefore to be considered in all respects as illustrative rather than restrictive,
20 the scope of the invention being indicated by the appended claims.

1 The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

5 1. In a liquid spray attachment for a lawn mower having rotatable cutting means, a spray head adapted to be mounted on the mower adjacent the cutting means, a container for the liquid adapted to be mounted on the mower above said spray head, and liquid conducting means extending between said container and spray head, said spray head having an upwardly directed liquid emitting opening for directing a spray of liquid into the path of the mower cutting means.

10 2. In a liquid spray attachment for a lawn mower having rotatable cutting means and a protective cover for the cutting means, a spray head adapted to be mounted on said cover in close proximity to said cutting means, a container for the liquid adapted to be mounted on the mower above said spray head, and a conduit for
15 conducting liquid from said container to the spray head, said spray head being formed with a plurality of restricted orifices arranged to direct a spray of liquid into the path of the mower cutting means when the spray head is mounted on said cover.

20 3. In a liquid spray attachment for a rotary lawn mower having a protective housing for the blade thereof, a spray head having a plurality of liquid emitting orifices, means to detachably secure said spray head on said housing with said orifices directed toward the interior thereof to spray liquid into the path of the blade, and a
25 container for the liquid connected to said spray head.

8

1 4. In a liquid spray attachment for a rotary lawn mower
2 having a protective housing for the blade thereof, said housing
3 including a top and a peripheral skirt depending from said top, a
4 spray head adapted to be mounted on said skirt with a portion of
5 the head extending inwardly into the interior of said housing, said
6 inwardly extending spray head portion having a plurality of
7 restricted orifices arranged to direct a spray of liquid into the
8 path of the blade for atomization of the liquid thereby, and a
9 container for the liquid connected to said spray head and adapted
10 to be detachably mounted on the mower above the head.

1 5. In a liquid spray attachment for a rotary lawn mower
2 having a protective housing for the blade thereof, said housing
3 including a top and a peripheral skirt depending from said top,
4 a spray head adapted to engage the lower edge of said skirt,
5 adjustable means to detachably secure said spray head in position
6 on said skirt, said spray head having at least one restricted
7 orifice directed toward the interior of said housing for spraying
8 liquid into the path of the blade, and a container for the liquid
9 connected to said spray head and adapted to be detachably mounted
10 on the mower at a point above the head.

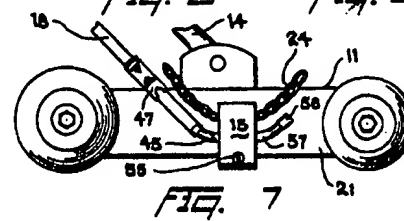
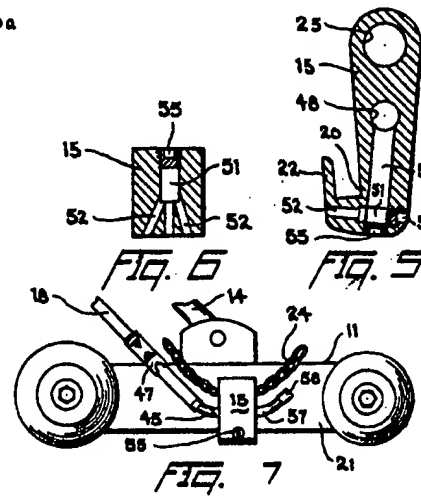
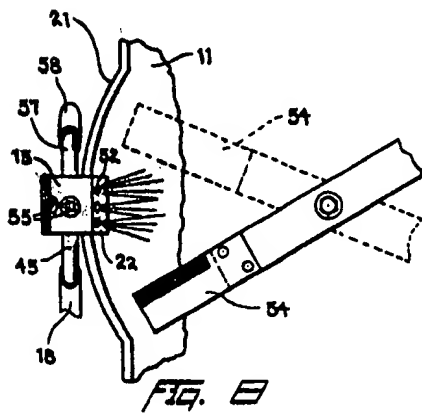
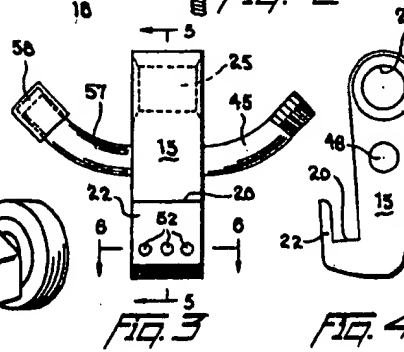
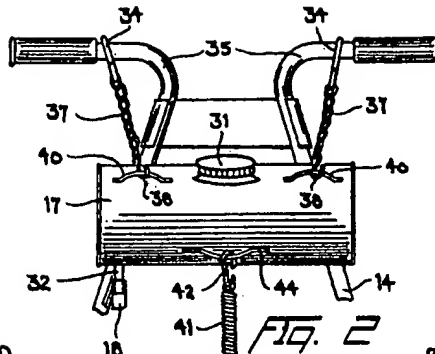
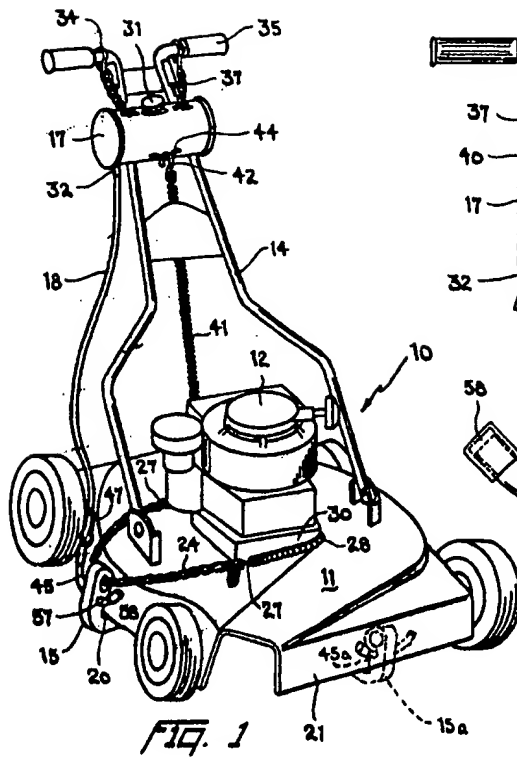
1 6. Structure as defined in claim 5 wherein said spray
2 head securing means comprises a flexible connector attached to the
3 head and spring means attached to said connector and engageable
4 with a portion of the mower structure.

1 7. Structure as defined in claim 5 wherein the mower
2 includes an operating handle and said liquid container is adapted
3 to be detachably mounted on said handle.

1 8. In a liquid spray attachment for a rotary lawn mower
2 having a protective housing for the blade thereof and a handle
3 operably connected to the housing, said housing including a top
4 and a peripheral skirt depending from said top, said attachment
5 comprising a spray head in block form adapted to engage the lower
6 edge of said skirt with a portion of the head extending inwardly
7 into the interior of said housing, adjustable means connected to
8 said spray head and engageable with a portion of the mower struc-
9 ture to detachably secure said spray head in position on said
10 skirt, said inwardly extending spray head portion having a plural-
11 ity of restricted orifices arranged to direct a spray of liquid
12 into the path of the blade for atomization of the liquid thereby,
13 said spray head having a liquid intake connection in communication
14 with said restricted orifices, a container for the liquid, means
15 to detachably secure said container to said mower handle, a flex-
16 ible conduit extending between said container and said spray head
17 intake connection, and means on said conduit to permit or prevent
18 the flow of liquid therethrough.

1 9. Structure as defined in claim 8 wherein said spray
2 head securing means comprises a chain member attached to the head
3 and a spring member attached to said chain member and engageable
4 with a portion of the mower structure.

1 10. In a liquid spray attachment for a rotary lawn
2 mower having a protective housing for the blade thereof, said
3 housing including a top and a peripheral skirt depending from said
4 top, a spray head in block form adapted to be mounted on said skirt
5 and formed with a transverse channel engageable with the lower
6 edge of the skirt, said spray head including means for attaching
7 it to the mower in said mounted position, said spray head when
8 mounted on said skirt having one portion thereof on the exterior
9 of the skirt and another portion on the interior of the skirt,
10 the interior portion of said spray head having a plurality of
11 restricted orifices arranged to direct a spray of liquid into the
12 path of the mower blade, said spray head having an interior
13 passage in communication with said orifices, and external connec-
14 tions on said spray head in communication with said interior
15 passage for connecting the head with a source of liquid.



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